

SUPPLEMENTAL MATERIAL

Supplemental table 1. Comparison of recanalization grading, and downstream embolization among front-line thrombectomy strategies

	First Pass effect (FPE)	Successful recanalization (mTICI 2b-3)	Complete recanalization (mTICI 2c-3)	Distal, collateral embolization
Contact aspiration (CA) [n=33]	15 (45%)	27 (82%)	21 (64%)	4 (12%)
Stent retriever (SR) [n=35]	10 (29%)	27 (77%)	20 (57%)	7 (20%)
Switch [n=25]	----	21 (84%)	14 (56%)	8 (32%)
Combined SR+ CA [n=35]	18 (51%)	34 (97%)	28 (80%)	2 (6%)

EXPANDED METHODOLOGY

PROCEDURE DESCRIPTION

The choice of anesthetic technique (General versus local anesthesia versus conscious sedation) was at the discretion of the stroke neurovascular team, based on stroke severity, patient's general condition, and operator's preference in addition to the pre-EVT plan put according to the analysis of baseline imaging. After angiographic affirmation of an intraluminal thrombus, a coaxial guiding catheter (NeuronMax, Penumbra, California, USA; or AXS infinity long sheath, stryker Inc., Bloomington, USA) was advanced in the distal V1 segment of the VA as far as safely feasible.

Occlusion site was typified according to baseline angiography into intracranial V4 segment of the VA, proximal BA (from the vertebrobasilar junction to the origin of the anterior inferior cerebellar artery "AICA"), middle BA (segment between origins of AICA and superior cerebellar arteries "SCA"), and distal BA (distal to SCA origin). Isolated posterior cerebral artery (PCA) occlusions were excluded.

Contact aspiration (CA)

In the CA group, a large-bore aspiration distal access catheter (5/6 French 115 or 125 cm SOFIA [MicroVention], 5-MAX, ACE-60, and ACE-64 (Penumbra, Alameda, California, USA) or AXS Catalyst® -6 [Stryker neurovascular]) attached to 60 cc vacuum pressure syringe (Vaclok®) or a Penumbra® aspiration pump; was steered in tri-axial fashion obtained by .021"/.027" delivery microcatheter (Trevor Pro 18® [Stryker neurovascular], Headway® 21 [MicroVention], Prowler Select Plus [Cordis, Miami, Florida, USA] or Rebar™ reinforced microcatheter [Medtronic]) that was advanced over a 0.014" micro guidewire (Traxcess or Synchro were the most commonly used) till wedging the clot. Removal of microcatheter before suction initiation was left to the operator's preference. Gentle advancement of the distal access catheter for 1-2 mm permitted tight engagement with proximal face of the clot; verified by absence of backflow through the suction tubing. Continuous aspiration was sustained for 3 consecutive minutes. Thereafter, the aspiration catheter was slowly withdrawn into the guiding catheter that was further retrieved backward with maintained suction to ensure no thrombus stuck at the catheter tip.

Stent retriever (SR)

In the SR mediated thrombectomy, a .021” microcatheter was navigated over .014” micro guidewire beyond the occlusion site, confirmed by gentle injection through the microcatheter. Then, the SR (Solitaire AB/FR [Covidien-Medtronic, California, USA], Trevo ProVue/ XP [Stryker] or EmboTrap®II Clot Retriever (Neuravi)) was deployed in active push across the occluded segment with distal two-thirds beyond the thrombus for 3 minutes. At that point, the microcatheter with the stent in situ was slowly withdrawn as a single unit under constant aspiration through the guiding catheter.

Combined SR+CA

Many variations of the combined technique have been fashioned contingent on distinct concepts including distal aspiration, flow arrest and flow reversal. Distal aspiration based approaches include *CAPTIVE* and *SOLUMBRA* techniques. Within *CAPTIVE* technique after clot by-pass, the distal aspiration is turned on prior to SR deployment and then MC is removed to boost the aspiration force. Afterwards, the DAC is navigated over the SR wire till tightly wedging the clot as denoted by stasis in the aspiration tubing. Finally, the DAC is removed as a single unit with the SR into the GC. In *SOLUMBRA* technique, A SR is deployed centrally across the clot while the DAC is navigated till wedging the proximal clot face, and then SR is retracted inside the DAC under continuous aspiration. Proximal flow arrest associated techniques which rely on BGC encompass *ARTS technique* which mimic the Solumbra technique, yet with primary utilization of a BGC and *PROTECT technique*; in which the SR is nearly fully retracted into the DAC close to the initially occluded segment. Flow reversal associated techniques include the *SAVE technique* which shows 3 differences (1) the SR is deployed so as the clot interacts with its only proximal third (2) No distal aspiration; instead a negative pressure syringe is used to maintain the vacuum after clot wedging (3) Continuous aspiration is connected to the GC to further reduce downstream embolization. Lastly, a recent approach dependent on combined flow arrest and reversal has been introduced namely; *the PROTECT plus* in which the SR is only partially retracted into a wedged DAC which altogether retrieved as a unit into the inflated BGC to which additional aspiration is applied [7-10].

Simultaneous thrombus-pinning between large bore aspiration catheters and stent-retriever devices with distal aspiration through the DAC and flow reversal through the GC was the preferential front-line EVT set in the combined SR+CA group in our study.

Switching technique

At the treating physician's discern in failed revascularization, whether repeat attempt with the identical mechanism till 3 device passes [in most of the cases] or switching to another thrombectomy technique (Switching group) were adopted. Additional rescue measures such as balloon angioplasty or stent implantation were implemented in case of significant underlying ICAS or tandem lesions.